Patent claims:

1. An analog-to-digital converter for converting a signal to be digitized into a digitized signal,

- having a plurality of comparators, each of which has a first and a second input and an output, which output can be used to provide the digitized signal;
- having an impedance network for each comparator, which is coupled to at least one input on the comparator, where a respective impedance network is connected between the associated comparator and the signal to be digitized and is connected between the associated comparator and a first electrical reference potential;
- where the impedance networks are set up such that the comparators are brought essentially to the same operating point.

2. The analog-to-digital converter as claimed in claim 1,
in which the second input of at least some of the comparators is brought to a second electrical reference potential.

3. The analog-to-digital converter as claimed in claim 2,
in which the second electrical reference potential is the ground potential.

4. The analog-to-digital converter as claimed in claim 2 or 3,
in which at least some of the impedance networks have a first nonreactive resistor and a second nonreactive resistor, the first nonreactive resistor being connected between the first input of at least some of the comparators and the first electrical reference potential, and the second nonreactive resistor being

connected between the first input of at least some of the comparators and the signal to be digitized.

5. The analog-to-digital converter as claimed in one of claims 1 to 4,
in which at least some of the impedance networks have a voltage divider.

6. The analog-to-digital converter as claimed in claim 5,
in which the voltage divider has a first impedance which is connected between the first input and a third electrical reference potential.

7. The analog-to-digital converter as claimed in claim 5 or 6,
in which the voltage divider has a second impedance which is connected between the first input and the first electrical reference potential.

8. The analog-to-digital converter as claimed in claim 6 or 7,
in which

- the first impedance is a third nonreactive resistor and/or the second impedance is a fourth nonreactive resistor; or
- the first impedance is a first capacitance and/or the second impedance is a second capacitance.

9. The analog-to-digital converter as claimed in one of claims 6 to 8,
in which the third electrical reference potential is the electrical ground potential.

10. The analog-to-digital converter as claimed in one of claims 1 to 9,
in which the first electrical reference potential is split into a first potential part and into a second

potential part, with a first portion of the comparators having at least some of their impedance network connected between the first input and the first potential part, and with a second portion of the comparators having at least some of their impedance network connected between the first input and the second potential part.

11. The analog-to-digital converter as claimed in claim 10,
in which the second and/or the third electrical reference potential has a value between the first and the second potential part.

12. The analog-to-digital converter as claimed in one of claims 1 to 11,
in which at least some of the comparators have a calibration device provided for them which is set up such that it can be used to correct a parameter fluctuation between different comparators.

13. The analog-to-digital converter as claimed in claim 12,
in which the calibration device has a switching element between the first input and the impedance network, which switching element can either

- be used to couple the first input to the impedance network in a detection mode or
- be used to bring the first input to a fourth electrical reference potential in a calibration mode, a resultant signal at the output of the comparator being able to be taken as a basis for calibrating the comparator using the calibration device.

14. The analog-to-digital converter as claimed in claim 13, in which the fourth electrical reference potential is the same as the second electrical

reference potential.

15. The analog-to-digital converter as claimed in one of claims 2 to 14,
in which the value of at least one of the first to fourth nonreactive resistors is calculated, for at least some of the impedance networks, on the basis of the criterion that one of the first inputs of the comparators has a signal applied to it which is essentially the same as the second electrical reference potential.

16. The analog-to-digital converter as claimed in one of claims 1 to 15,
in which the value of at least one of the first to fourth nonreactive resistors is calculated, for at least some of the impedance networks, on the basis of the criterion that altering the signal to be digitized by a prescribable value results, for at least some of the comparators, in an alteration to the electrical potential at their first input by an essentially equal value.

17. The analog-to-digital converter as claimed in one of claims 1 to 16,
in which the value of at least one of the first to fourth nonreactive resistors is calculated, for at least some of the impedance networks, on the basis of the criterion that the nonreactive output resistance of at least some of the impedance networks is essentially the same.

18. The analog-to-digital converter as claimed in claim 1,
in which

- at least some of the comparators have the respective associated impedance network containing a first impedance device part coupled to the first

input and a second impedance device part coupled to the second input,

- the signal to be digitized is split into a first and a second signal part to be digitized and the first electrical reference potential is split into a first potential part and a second potential part,
- the first impedance device part is connected between the first input, the first signal part to be digitized and the first potential part, and the second impedance device part is connected between the second input, the second signal part to be digitized and the second potential part.

19. The analog-to-digital converter as claimed in claim 18,
in which the first and second signal parts to be digitized are differential signals.

20. The analog-to-digital converter as claimed in claim 18 or 19,
in which

- the first impedance device parts have a first nonreactive resistor and a second nonreactive resistor, the first nonreactive resistor being connected between the first input and the first electrical potential part, and the second nonreactive resistor being connected between the first input and the first signal part to be digitized;
- the second impedance device parts have a third nonreactive resistor and a fourth nonreactive resistor, the third nonreactive resistor being connected between the second input and the second electrical potential part, and the fourth nonreactive resistor being connected between the second input and the second signal part to be digitized.

21. The analog-to-digital converter as claimed in claim 20,
in which at least one fifth nonreactive resistor is connected between the first and second inputs.

22. The analog-to-digital converter as claimed in claim 21,
in which the fifth nonreactive resistor is split into a first and into a second resistor part, with a connection between the first and second resistor parts being brought to a fifth electrical reference potential.

23. The analog-to-digital converter, as claimed in one of claims 1 to 22, set up as an integrated circuit.